



## **Ecological Assessment Report**

### **Proposed Forster Civic Precinct Development.**



Prepared for:  
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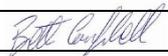
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# Introduction

## 1.1 Background

East Coast Environmental has been commissioned by Coastplan Pty Ltd on behalf of Enyoc Pty Ltd, to undertake an Ecological Assessment for the proposed Solaris Forster Civic Precinct redevelopment project. The Subject site is located on the former Forster Primary School Site on the corner of Lake and Middle Streets, Lots 11-13 DP47987, Forster. The proposed development is hereafter referred to as the Subject site for the purposes of this ecological Assessment and the location of the Subject Site is shown in Figure 1 below.

The Proposed Forster Civic Precinct Project is an integrated development incorporating Community facilities such as a library, Visitor information and community facilities with private hotel, restaurants and bars.



**FIGURE 1: LOCATION OF THE SUBJECT SITE.**



**FIGURE 2: PRELIMINARY DEVELOPMENT PLAN**

## 1.2 Purpose of the Report

This Ecological Assessment investigates the potential ecological issues associated with the proposed development particularly with regard to threatened species, populations and endangered ecological communities and is intended to assist Council in the decision making process.

## 1.3 Outline of the Report

The report has been structured to provide information consistent with requirements of the *Environmental Planning and Assessment Act 1979*, the *Threatened Species Conservation Act 1995* and the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. The report is structured as follows:

**Section 2** – Describes the flora survey methods and fauna surveys and assessments employed for the study.

**Section 3** – Describes the results of the flora and fauna surveys and assessments.

**Section 4** – Contains the Section 5A and EPBC Assessments

**Section 5** – Discusses the potential impacts of the activity and provides recommendations to further minimise potential impacts.

**Section 6** – Provides a conclusion in relation to the impact of the proposed clearing on the fauna, flora and ecological communities of the subject site.

# Study Methodology

## 2.1 Desktop Review and Background Research

A desktop review was undertaken to; determine the occurrence of the Threatened species recorded in the locality of the site from databases and previous ecological and assessment reports and to identify relevant information on the potential impacts of the proposed additional culvert through the review of the modelled hydrological information for the rural residential development. The review included the following reports and databases;

- A search of the records held by the Office of Environment and Heritage (OEH), Bionet Atlas of NSW Wildlife database (2016);
- Aerial photo interpretation for habitat types in the locality;
- Ecological Assessment Old Forster School Site (Orogen 2016);
- Arborists report -Old Forster Primary School, Corner Lake and Middle Street, Forster. (TLC Tree Solutions).

## 2.2 Field Investigations

Field investigations were undertaken by the author over a period of approximately 1.5 hours on the 16<sup>th</sup> February 2016. The survey methods employed utilised techniques specifically targeted to the detection of Threatened species.

### 2.2.1 Botanical Survey

The botanical survey was undertaken along a meandering transect during which, dominant species in each stratum were recorded. The vegetation communities are named after dominant indicator species of the tallest stratum and most could be considered as ‘associations’ as defined by Beadle (1981). The meandering transect survey targeted the Threatened flora taxa and endangered populations known or likely to occur in the locality including but not limited to; White-flowered Wax Plant (*Cynanchum elegans*), Coast Groundsel (*Senecio spathulatus*), Dwarf Heath Casuarina (*Allocasuarina defungens*), Nubiatic Casuarina (*Allocasuarina simulans*), Sand Spurge (*Chamaesyce psammogeton*), Rainforest Cassia (*Senna acclinis*), Tuncurry Midge Orchid (*Genoplesium littorale*), Magenta Lilly Pilly (*Syzygium paniculatum*), Noah's False Chickweed (*Lindernia alsinoides*) and Trailing Woodruff (*Asperula asthenes*).

### 2.2.2 Fauna Transect Searches

A fauna transect search was undertaken throughout all habitats of the site particularly targeting; raptor nests, feeding signs of Glossy Black Cockatoo, latrine sites for Spotted Quoll, worn glider runs in trees and nest/roost sites for Threatened owls and raptors.

### 2.2.3 Habitat Assessment

A fauna habitat assessment was undertaken within the study area for the Threatened species identified in the desktop investigations which are known or likely to occur within the area. The assessment was based on the occurrence of specific foraging, nesting, denning and roosting resources appropriate for these species.

Habitat features that noted during the surveys included, the occurrence of hollows, logs and woody debris, standing dead trees, fruiting and nectar resources, wetlands and aquatic features and rock shelter resources. This habitat assessment was then used to determine likelihood of threatened species occurrence and site utilisation species for the proposed development. The habitat assessment is then relied upon to assess the subject species for the Section 5A assessment.

#### **SEPP 44 - Koala Assessment**

In accordance with SEPP44, an assessment was undertaken to determine the occurrence of Koala habitat within the site. The SEPP 44 assessment involved:

- Determination of whether the site occurs within the Local Government Areas (LGA's) listed on Schedule 1 of SEPP 44;
- Determination of *potential Koala habitat* within the site;
- Determination of *core Koala Habitat*; and
- Consideration of the need for a Koala Plan of Management.

While the Midcoast Council is one of the listed LGA's on Schedule 1 of SEPP 44 the forest community did not contain potential Koala habitat as the forest community did not contain at least 15 % of tree species listed in Schedule 2 constitute in the upper or lower strata of the tree component. As such, no specific Koala scat and scratch surveys were required (KSAT or KRAM surveys). Notwithstanding, the signs of the species utilisation were targeted during the Fauna transect searches.

#### **2.2.4 Survey Limitations**

In accordance with the clients brief, comprehensive flora and fauna surveys were not undertaken within the site. The surveys were limited to vegetation assessments identifying only dominant species, targeted Threatened flora transects, fauna transect searches and habitat assessments and as such, the Precautionary Principle was applied in determining the Threatened species potentially utilising the habitats at the site. The surveys were undertaken during an appropriate season to detect most flora and fauna species including the threatened orchid, Tuncurry Midge Orchid (*Genoplesium littorale*), which is known to commence flowering in mid to late February.

## Results

### 3.1 Desktop Review

The review of the Atlas of NSW Wildlife database revealed five (5) threatened plant species and 51 threatened fauna species and one endangered population within the locality of the site (OEH, 2017). Details of the species recorded in the locality are included in Appendix 2. The desktop investigation also included Aerial photo interpretation to assist in the definition of the vegetation community both on site and in the local area.

### 3.2 Flora

#### 3.2.1 Vegetation Communities

The site is extremely disturbed having been previously cleared and developed for the former Primary School. As a result the majority of the site is currently cleared and the majority of the mature trees are located on the perimeter of the site with the exception a few scattered trees occurring within the site. This vegetation is a mix of landscape plantings, garden escapees and species that have either regrown from seed stock in the soil or deposited by fauna dispersion. Prior to the development of the primary school the vegetation community would have been a Coastal Dune Blackbutt/ Smooth Barked apple/Swamp mahogany forest assemblage grading into a Rainforest community. The overstorey species of the subject site include; Moreton Bay Fig (*Ficus macrophylla*), Hoop Pine (*Araucaria cunninghamii*), Norfolk Island Pine (*Araucaria heterophylla*), Blackbutt (*Eucalyptus pilularis*), Swamp Mahogany (*Eucalyptus robusta*), Date Palm (*Phoenix dactylifera*), Spotted Gum (*Corymbia maculata*), Tuckeroo (*Cupaniopsis anacardioides*), Smooth-barked apple (*Angophora costata*), Cypress Pine (*Cupressus macrocarpa*), Celery Wood (*Polyscias elegans*), Coast Banksia (*Banksia integrifolia*), Cheese Tree (*Glochidion ferdinandi*), White Cedar (*Melia azedarach*), Bangalow Palm, (*Archontophoenix cunninghamiana*), Red Bloodwood (*Corymbia gummifera*), Brushbox (*Lophostemon confertus*), Camphora Laurel (*Cinnamomum camphora*) and the Threatened species, Magenta Lily Pilly (*Syzygium paniculatum*).

The shrub layer is dominated by Tuckeroo (*Cupaniopsis anacardioides*), Cypress Pine (*Cupressus macrocarpa*), Celery Wood (*Polyscias elegans*), Willow Bottlebrush (*Melaleuca salignus*), Coffee Bush (*Breynia oblongifolia*), Black She-oak (*Allocasuarina littoralis*) and Coast Wattle (*Acacia sophorae*). The groundcover is relatively dense and is comprised of introduced and native grass and herb species including Blue Flax-Lily (*Dianella caerulea*), Wiry panic (*Entolasia stricta*), Spiny-Head Mat-Rush (*Lomandra longifolia*), Asparagus fern (*Asparagus aethiopicus*), Quaking Grass (*Briza maxima*), Farmers Friend (*Bidens pilosa*), Kikuyu (*Pennisetum clandestinum*), Paspalum (*Paspalum dilatatum*), Narrow-leafed Carpet Grass (*Axonopus fissifolius*), Bermuda grass (*Cynodon dactylon*), Wandering Jew (*Tradescantia fluminensis*), Twining Guinea Flower (*Hibbertia scandens*), Flaxleaf Fleabane (*Conyza floribundus*), Lantana (*Lantana camara*) and Bitou Bush (*Chrysanthemoides monilifera*).

#### Conservation Status

The majority of the site is a highly disturbed derivative of Coastal Dune Blackbutt/ Smooth Barked Apple/Swamp Mahogany forest and is considered to have a negligible ecological significance. The site does however contain a number of Rainforest Trees and a small stand of these trees occurring along the southern Boundary of the subject site. Based on the position of this group of trees it is suspected that the stand is derived from seed stock or has been deposited by faunal dispersers on the site. This species assemblage of this stand, is partially analogous to Lowland Rainforest however as the site is underlain by Aeolian/marine sands of low fertility, the community is considered analogous to the Final Determination of the Endangered Ecological Community; Bangalay Sand Forest of the Sydney Basin and South East Corner bioregions pursuant to the TSC Act. This community also aligns with the EPBC Listed, Littoral Rainforests and coastal vine thickets of eastern Australia.



**FIGURE 3: PHOTOGRAPH OF DISTURBED NATURE OF VEGETATION AND SCATTERED EUCALYPTS.**



**FIGURE 4: PHOTOGRAPH OF THE STAND OF LITTORAL RAINFOREST**

### 3.2.1 Threatened Flora Species

The single Magenta Lily Pilly (*Syzygium paniculatum*) previously identified by Orogen (2006) was located in a small stand of rainforest trees along the southern boundary of the site.

### 3.2.2 Endangered Populations

No Endangered Populations were identified in the study area.

## 3.3 Fauna

### 3.3.1 Fauna Traverse Searches and Opportunistic sightings

During the searches no evidence of Threatened fauna occurrence was recorded. The searches did not identify any evidence of Raptor nest sites or pellets or Forest Owl Pellets, no Glider feed sites were located and no evidence of Glossy Black Cockatoo utilisation was recorded in the single Allocasuarina recorded on the site. A small number of potential Koala feed trees that occur on the site were searched for characteristic scratches and scats of the species however no evidence of Koala Habitat utilisation was detected. The site does not contain any potential habitat for Threatened amphibians and extremely limited habitat for threatened reptiles such as Stephens Banded Snake.

During the survey only one skink species, *Lampropholis delicata* and only common avifauna species such as the Indian Myna, Noisy Miner, Figbird, an Rainbow and Scaly-breasted lorikeets were recorded opportunistically during the surveys. An assessment of likelihood of Threatened fauna species occurrence is contained in Appendix A.

### 3.3.2 Habitat Assessment

The vegetation of the subject site provides only limited resources for the Threatened species occurring in the local area. Due to the small area of the subject site, the high levels of disturbance including the high abundance of introduced species, the habitat resources for Threatened species is limited to a few native trees that provide nectar resources and fruit during the flowering and fruiting periods. The Threatened species that are likely to utilise these resources are limited to mobile species such as the Grey-headed flying fox and bird species. The flowers would also attract insects and could therefore provide some foraging habitat for mobile insectivorous species including Microchiropteran bats.

The site provides limited hollow resources in a small number of mature eucalypts suitable small hollow suitable for Microchiropteran bats. The site does not contain hollows suitable for Squirrel, Greater and Yellow-bellied Gliders, large forest owls or the Glossy Black Cockatoo.

The study area contains negligible quantities of fallen trees or logs, leaf litter and therefor only provides suitable shelter resources for a common reptiles and does not provide potential breeding habitat for any Threatened amphibians occurring within the local area.

As the subject occurs in the highly developed location the site does not form part of any wildlife corridor and therefore is unlikely to represent potential hunting habitat for the threatened forest owls specifically the Powerful and Masked Owls and raptors such as the Square-tailed Kite (*Lophoictinia isura*).

While the site does contain a small number Eucalypt species which are known to be favoured by Koalas, no recent activity was observed and there are no records of the species in close proximity to the subject site.

## Section 5A Assessment and EPBC assessment

The Section 5A Assessment and EPBC Assessment detailed in this section relies upon the results of the desktop investigations, field investigations (including the habitat assessments), and refers to the identification of Subject Species as detailed in Appendix A. As the site does not include oceanic or estuarine habitats species which are dependent on marine environments such as Whales, Sea Turtles and Pelagic birds has been excluded from the assessment of Subject species. In total only were considered as Subject species for the proposed .

### 4.1 Section 5A Assessment

- (a) **In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction;**

The study area currently contains a small number of Eucalypts and fruiting rainforest trees which may be used on occasion by highly mobile nectivorous and frugivorous species such as the Grey headed Flying fox, Squirrel Glider, or Little Lorikeet. The site may also be utilised for hunting as part of much larger home ranges of Threatened raptors and microchiropteran bats and, as a small number of trees contain potential hollows the site may provide some roosting habitat for a small number of microchiropteran bats.

The site also contains a single Magenta Lilly Pilly which will be retained in the development. This single tree is however extremely isolated from other individuals of the species and under current conditions is unlikely to assist in the expansion of the population in the local area. The main population of the species is contained within Booti Booti National Park which provides security of the local population.

However, due to the small size of the subject site, its central CBD location surrounded by commercial development and as, the site is largely cleared, has a long history of development and is heavily impacted by weeds the habitats provided by the site are insignificant and are considered extremely unlikely to be used on a regular basis. The species that may utilise these habitats would be only a small proportion of a larger viable population in the local area and the loss of these areas are unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

- (b) **In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction;**

No endangered populations were detected or, are considered as potentially occurring within the proposed clearing area. The proposed development will therefore not have an adverse impact upon the life cycle of any species that constitutes an Endangered Population.

- (c) **In the case of a critically endangered or endangered ecological community, whether the action proposed:**

- i. Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**

A small stand of rainforest trees has been identified as being analogous to the Endangered Ecological Community, Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregion. This stand of trees has been incorporated into the design of the proposed

development and will be retained and protected during both the construction and operational phases of the development through the adoption of tree protection actions as defined by the Arborist. Notwithstanding the community is not a good example of the EEC, lacks the true functionality of the Littoral Rainforest and is a negligible area of the community in the context of larger high quality stands in Booti Booti NP.

**II. Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction;**

The stand of trees that is analogous to Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregion will be retained within the development. Further, the Arborists report has recommended tree protection measures in order to protect these trees from harm during the construction and operation of the proposed development.

Therefore, the proposed development will not have an adverse effect on the extent nor substantially or adversely modify the composition of any endangered or critically endangered ecological community.

**(d) In relation to the habitat of a threatened species, population or ecological community:**

**The extent to which habitat is likely to be removed or modified as a result of the action proposed, and**

**I. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and**

The site is located in the CBD of Forster and is largely isolated from any significant tracts of vegetation that may be used as wildlife corridors or that allows the transferal of genetic material over time. The majority of Threatened species that may utilise the site are highly mobile species such as Birds and microchiropteran bats and the regrowth stand of Littoral rainforest trees that contains the Magenta Lilly Pilly is extremely small and isolated from other connecting areas of this community which occurs in Booti Booti NP and as such it is unlikely that any genetic material is currently exchanged.

It is therefore considered that the clearing of a small number of isolated trees for the proposed development will not fragment any interconnecting areas of habitat occurring in the locality.

**II. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

Due to the small size of the subject site, its degraded nature and isolation from higher quality vegetation and habitats, the sites habitats are not considered important to the long term survival of any Threatened Species, Endangered population or Ecological community occurring in the locality.

**(e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly);**

There is currently no critical habitat identified for any populations of the subject species under Section 3 of the *Threatened Species Conservation Act 1995*.

**(f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan;**

No draft recovery plans or final recovery plans have been prepared under the *TSC Act* for the Subject species identified for the proposed development and no threat abatement plans are applicable to the proposal.

**(g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.**

An assessment of the potential for the proposed development to contributing to relevant key threatening processes is detailed below.

**Anthropogenic climate change** The use of machinery during construction and clearing of some vegetation will make a contribution to anthropogenic climate change through release of stored carbon from vegetation and greenhouse gas emissions associated with use of fossil fuels. The clearing of vegetation will also reduce the vegetation available for Carbon dioxide cycling however the impact of the proposal on anthropogenic climate change is negligible in the context of other activities in the region and will be offset to some extent by the proposed landscaping of the site.

**Clearing of native vegetation** - The proposal includes the removal of 1 ha of highly disturbed native regrowth vegetation, landscaped plantings and a small stand of Littoral Rainforest Trees which will be retained in the proposed development. The contribution to this Key Threatening Process is therefore considered to be a negligible impact on this process.

**Invasion of native plant communities by *Chrysanthemoides monilifera*** -The study area and subject site contains small patches of Bitou Bush (*Chrysanthemoides monilifera*) however the proposed development is unlikely to exacerbate this KTP as the development will be landscaped and managed during the operation of the development. .

**Invasion of native plant communities by exotic perennial grasses** - The subject site currently contains a high proportion of exotic perennial grass species however the proposed development is unlikely to exacerbate this KTP as the site will be landscaped and all grounds maintained during the operation of the development. .

The proposed development would not enhance any of the remaining KTP's listed on Schedule 3 of the *Threatened Species Conservation Act 1995*.

## 4.2 Commonwealth EPBC ACT Assessment

The *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)* requires that assessment must be made to determine if an activity is likely to impact upon seven identified Matters of National Environmental Significance (MNES). Activities considered likely to cause a significant impact to matters of NES require referral to the Commonwealth Department of Environment and Energy (DOEE) under the provisions of the *EPBC Act*.

There seven matters of MNES listed under the *EPBC Act* are:

- World Heritage properties;
- National heritage places;
- Wetlands of international importance (Ramsar wetlands);
- Threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas; and
- Nuclear actions (including uranium mining).

### 4.2.1 Assessment

The relevance of each matter of NES is discussed in **Table 2**. This assessment was undertaken with reference to the Protected Matter Search Report undertaken with a buffer area of 10 km.

**Table 1 - Consideration of EPBC Act Matters of National Environmental Significance (MNES)**

Consideration	Assessment
World Heritage Areas	The proposed development will not impact upon any World Heritage Area.
National Heritage Places	There are no National Heritage places that will be affected by the proposed development
Ramsar Wetlands of International Significance	The proposed development will not impact upon any Ramsar wetland.
Listed Threatened Species	Whilst a number of EPBC threatened species are known from the locality only the Grey-headed Flying-fox was considered as Subject species for the proposed development. The habitat resources proposed to be removed do not represent a significant area of habitat in a local or regional context. The clearing will of less than 1 ha is negligible in the species range and will not cause isolation of habitats in the locality. The proposed development is therefore unlikely to cause a significant impact to any Threatened species listed under the <i>EPBC Act</i> .
Listed Ecological Communities	The small stand of rainforest trees along the southern boundary of the site is analogous to the Critically Endangered Ecological Community “Littoral rainforest and coastal vine thickets of eastern Australia”. This community however is small isolated and unlikely to be function as a littoral rainforest community and while the stand will be retained in the proposed development, removal of this area would not cause a significant impact to any EPBC Act listed Ecological Communities.
Listed Migratory Species	The site does not contain an important area of habitat for migratory species. The proposed development is therefore unlikely to cause a significant impact any the listed migratory species, including those on JAMBA/CAMBA.
Commonwealth Marine areas	The proposed development is unlikely to cause a significant impact to any Commonwealth marine areas.
Nuclear actions	The proposed development does not constitute a nuclear action

## 4.2.2 Other Matters Protected by the EPBC Act

In addition to the Matters of National Environmental Significance, consideration must be given to other matters protected by the *EPBC Act* when assessing proposals. These matters are summarised in **Table 2** and this assessment was undertaken with reference to an Environment Protection and Biodiversity Conservation Act Online Database search, with a buffer area of 10 km.

**Table 2 - Consideration of Other Matters under EPBC Act**

Consideration	Assessment
Commonwealth Lands	The proposed development will not impact upon any Commonwealth Lands.
Commonwealth Heritage Places	No Commonwealth Heritage Places have been identified within the locality of the study area by the online search.
Places listed on the Register of the National Estate (RNE)	The proposed development will not affect the other six (6) items listed for the locality.
Listed Marine Species	No marine habitats occur at the site and, the proposed development is unlikely to cause a significant impact upon the estuarine environment. In addition, the habitat proposed to be removed is unlikely to represent an area of important habitat for listed marine species such as the Swift Parrot ( <i>Lathamus discolor</i> ), White-throated Needletail ( <i>Hirunapus caudactus</i> ), and Rainbow Bee-eater ( <i>Merops ornatus</i> ) etc. The proposed development is therefore unlikely to cause a significant impact to listed marine species.
Whales and Other Cetaceans	The site does not contain any habitat for whales or other cetaceans
Critical Habitats	No critical habitats listed under the <i>EPBC Act</i> have been identified within the locality.
Commonwealth Reserves.	No Commonwealth Reserves occur within the locality.

## 4.2.3 Key Threatening Processes

Only two (2) Key Threatening Processes (KTP's) listed under the *EPBC Act*, are relevant to the proposed activity, namely '*loss of climatic habitat caused by anthropogenic emissions of greenhouse gases*' and '*Land Clearance*'.

The contribution of greenhouse gases as a result of the construction activity is however, negligible in the context of other activities occurring in the region. In addition, the small amount of native vegetation proposed to be removed for the proposal is considered negligible the area of native vegetation occurring in the locality.

## 4.2.4 Potential for Significant Effect on Matters of NES

It is submitted that the proposed development will not result in the potential for a significant effect on Threatened Species and Threatened Ecological Communities listed under the *EPBC Act*.

There are no Wetlands of International Significance, Migratory Species, EPBC listed Threatened species or any other matters protected by the *EPBC Act* that will be significantly affected by the proposed development. It is therefore considered that the proposed development would not require Commonwealth approval under the provisions of the *EPBC Act*.

## Discussion and Recommendations

### 5.1 Flora

#### 5.1.1 Vegetation Removal

The majority of the vegetation to be removed occurs as scattered trees with a highly modified understorey. The proposed removal of these scattered trees and limited native understorey vegetation is not considered to be a significant area of vegetation.

The proposed development footprint has also been modified to retain a small stand of a Littoral Rainforest EEC ecotype which includes a single Magenta Lilly Pilly (*Syzygium paniculatum*). While this area does not have the characteristics of a functioning rainforest community, and the removal of this vegetation would not pose a significant impact to the community in the local area, the retention within the proposed development allows is a centre piece for the proposed development providing for a community and visitor appreciation of this vegetation type and the Magenta Lilly Pilly.

#### Weed Invasion

The site is currently heavily impacted by weed invasion with most of the groundcover dominated by introduced weed species. The proposed development works will result in the clearing of all introduced weeds and following the construction stage the site will be landscaped and maintained for its operational life as weed free. The proposed development is therefore considered to reduce the potential for weed spread in the local area and no specific mitigation measures are required.

### 5.2 Fauna

#### 5.2.1 Habitat Removal

The site contains a small area of potential foraging habitat for both protected species and Threatened species known to occur, or considered to potentially occur in the locality. The removal of vegetation for the proposal will therefore reduce the area of potential foraging habitat available for both protected species and Threatened species known or, potentially occurring in the locality.

The proposed clearing area contains a number of trees with small hollow cavities and therefore, the proposed clearing will result in the removal of potential denning or roosting habitat for smaller sized fauna. Despite this, it is unlikely the removal of the hollow resources from the proposed clearing area is likely to significantly affect the viability of any Threatened species known or, potentially occurring in the locality (**Appendix A**). The habitat resources proposed to be removed from the clearing area are unlikely to represent a significant area of habitat for fauna species in a local or regional context.

#### 5.2.2 Cumulative Effect

The proposed clearing will contribute towards the cumulative effect of habitat loss occurring in the locality however, due to the small area of potential habitat for Threatened species and protected species that will be removed as a result of the proposal, the cumulative impact could not be regarded as considerable or significant.

## 5.3 Mitigation Measures

While the proposal is not likely to cause a significant impact upon any Threatened species, population or endangered ecological community, a number of mitigation measures are recommended in order to reduce the potential for injury to fauna during the clearing activity. These are discussed in the following sections of the report.

### 5.3.1 Tree Protection Measures

The tree protection measures identified in the Arbroist report are important to maintain the health and viability of the retained trees and particularly, the Littoral Rainforest Trees and Magenta Lilly Pilly contained within this stand. All clearing and construction personnel must be informed of these measures prior to the commencement of works.

### 5.3.2 Pre-clearing Surveys

It is recommended to conduct fauna surveys prior to the clearing operations, commonly referred to as 'Pre-clearing surveys'. These surveys target particular Threatened species known or potentially occurring in the area and attempt to identify critical sites for these species such as hollows. The following pre-clearing survey methods are recommended and should be undertaken with 7 days prior to the any clearing activity.

#### Combined Anabat/Stagwatching Surveys

Stagwatching at dusk using an Anabat is to be undertaken around all hollow bearing trees to be removed. In addition, a general transect of the site is to be undertaken with the Anabat unit in hand. The aim of these surveys is to identify any potential microchiropteran maternal roost sites occurring within the site. The stagwatching/Anabat surveys are to be undertaken on at least two (2) nights.

If, during the pre-clearing surveys, a hollow bearing tree within the clearing area is suspected to be a maternity site for threatened fauna species, further investigations should be undertaken using an Infra-red camera and video system. If the site is then confirmed to be a maternity site, clearing around the tree should cease and an appropriate course of action for the monitoring, management and protection of that maternity hollow should be established until such time as the breeding event has been naturally completed, without undue interference. The clearing would only recommence only after the species has vacated the hollow.

### 5.3.3 Ecological Clearing Supervision

Ecological clearing supervision should be undertaken to minimise the potential impact on fauna during the clearing activity. The ecologist should be onsite check all hollow cavities for inhabiting fauna upon felling. Any fauna captured should be re-sited in an appropriate nest box located in suitable habitat for that species. Any injured fauna should be captured where possible and taken to the local wildlife carer.

## Conclusion

### 6.1 Conclusion

This report has been prepared to assess to potential impact of the proposed Solaris Forster Civic precinct development on the ecological attributes of the subject site and surrounds , including *Threatened species, populations or ecological communities or their habitats within the locality*'.

The site was found to highly disturbed due to its previous use as a primary school. The site now supports only scattered native and landscape trees and is subject to extensive weed invasion. The site does however support single threatened species, the Magenta Lilly Pilly (*Syzygium paniculatum*). This single Magenta Lilly Pilly is a mature tree that occurs in the a stand of mixed rainforest trees. Although small, this stand is largely analogous to the Littoral Rainforest, Threatened Ecological Community listed under both the TSC Act and EPBC Act. This area has been retained in the development and recommendations for minimising harm to these trees have been recomended in an Arborist report prepared for the development.

The remaining vegetation proposed to be removed is generally limited to scattered trees with a highly disturbed understorey. This vegetation may provide some foraging and/or breeding resources for Threatened fauna species however due to the isolated nature of the site, the small size of the subject site and, limited habitat resources, it was considered that this habitat would represent a negligible area of habitat for any threatened fauna species in the locality

The Section 5A Assessment concluded that the proposal is unlikely to have a significant effect on *'Threatened species, populations or ecological communities or their habitats within the locality*'. The EPBC assessment similarly determined that the proposed development is unlikely to impact upon any matters of NES and hence referral to DOEE is not required.

## References

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## Appendix A

### Threatened Flora and Fauna Species Known or Potentially occurring in the Locality and determination of Subject Species for the EPBC and Section 5A Assessments

**Table A.1 - Threatened Flora Species Known or Potentially occurring in the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Allocasuarina defungens</i> Dwarf Heath Casuarina	TSC Act: Endangered EPBC Act: Endangered	A straggly shrub to 2 m high. Found mainly in tall wet heath on sand, also found to occur on clay soils and sandstone. Extends on to hills nearby the coast and on headlands adjacent sandplains (OEH, 2015, Plantnet).	The Dwarf Heath Casuarina is known from numerous records in the Nabiac/Minimbah area with only a small number of scattered records within Booti Booti NP and on Wallis island. The subject site does not contain potential habitat for this species. Not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal.
<i>Allocasuarina simulans</i> Nabiac Casuarina	TSC Act: Endangered EPBC Act: Endangered	The Nabiac Casuarina is a straggling shrub of the sheoak family, 1 to 3 m in height. Found mainly on sandplains restricted to the mid-north coast of NSW, from Nabiac to Forster and is very rare. (OEH, 2017, Plantnet).	The Nabiac Casuarina is known to occur at Forster Keys, South Forster, and Booti Booti NP. The site does not contain potential habitat for this species. Not detected on the site. Unlikely to occur.	Not considered a subject species for the proposal.
<i>Asperula asthenes</i> Trailing Woodruff	TSC Act: Vulnerable EPBC Act: Vulnerable	A low, trailing, perennial herb found in scattered locations from Bulahdelah north to near Kempsey, with several records from the Port Stephens/Wallis Lakes area (OEH, 20017). Grows in damp sites often along river banks, often found in swamp sclerophyll forest on flood plain alluvium (Plantnet, 20017, I. Mammott pers. comm.)	Scattered records within 10 km of the site in swamp Sclerophyll forest and along creeks. While the subject site contains some potential habitat, the species was not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal
<i>Cynanchum elegans</i> White-flowered Wax Plant	TSC Act: Endangered EPBC Act: Endangered	A variable climber with underground suckering stems. Found on the edge of dry rainforest vegetation, and littoral rainforest, Coastal Tea Tree /Coastal Banksia coastal scrub; Open forest and woodland, and Bracelet Honey Myrtle ( <i>Melaleuca armillaris</i> ) scrub /open scrub. The species flowers between August and May (Plantnet, 2017).The known distribution extends from Yabbra State Forest in the north to Gerroa in the south and west to Merriwa in the Upper Hunter (OEH, 2017).	Scattered records within 10 km of the site in coastal scrub/littoral rainforest. While the subject site contains some potential habitat, the species was not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal.
<i>Lindernia alsinoides</i> Noah's False Chickweed	TSC Act: Endangered EPBC Act: Not listed	Noah's False Chickweed Grows in swamp forests and wetlands along coastal and hinterland creeks from Bulahdelah to Coopernook and with occurrences further north at Shannon Creek west of Coutts Crossing and also at Bungawalbyn.	Noah's False Chickweed is known from numerous wetland habitats in the local area. The subject site does not contain potential habitat for this species. Not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal

**Table A.1 - Threatened Flora Species Known or Potentially occurring in the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Syzygium paniculatum</i> Magenta Lilly Pilly	TSC Act: Vulnerable EPBC Act: Vulnerable	The Magenta Lilly Pilly is found along a narrow coastal strip from Conjola National Park near Jervis Bay to Bulahdelah, with the northern limit being generally at Booti Booti National Park on the NSW mid north coast. There are some scattered records further north, including within Saltwater NP and Ballina. This species grows in subtropical and littoral rainforests on sandy soils or stabilised dunes. In the central coast area the species is recorded from gravels, sands, silts and clays.	The species is recorded from Littoral Rainforest near Tiona in Booti Booti NP, at Sugarloaf Bay in Seal Rocks and along the coast within Myall Lakes NP.	<b>Subject species for the proposal</b>
<i>Maundia triglochinooides</i>	TSC Act: Vulnerable EPBC Act: Not Listed	Restricted distribution in coastal NSW and extending into southern Queensland. The current southern limit is Wyong. Grows in swamps or shallow freshwater on heavy clay (Plantnet, 2017).	<i>Maundia triglochinooides</i> is known from a small number of records in the Minimbah Area. No potential habitat occurs on the site and the species was not detected during targeted surveys and is considered unlikely to occur. Not considered a Subject Species for the proposed development.	Not considered a subject species for the proposal
<i>Genoplesium littorale</i> ( <i>syn Coronastylis littoralis</i> ) Tuncurry Midge Orchid	TSC Act: Critically Endangered EPBC Act: Critically Endangered	Known from only a small area from Darawank to Pacific palms. The Tuncurry Midge Orchid grows in coastal heath close to the ocean in deep, well-drained sandy soils. The vegetation consists of a variety of shrub species such as <i>Leptospermum laevigatum</i> , <i>Monotoca elliptica</i> , <i>Ochrosperma lineare</i> and <i>Banksia</i> spp. Lichens and various graminoids are often present alongside the orchids (OEH 2017).	The majority of the records of the species are within 10km of the subject site. Due to highly disturbed nature of the site it is unlikely to provide potential habitat for this species. Not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal
<i>Chamaesyce psammaegeton</i> Sand Spurge	TSC Act: Endangered EPBC Act: Not listed	A mat-forming herb that flowers in summer, with plant growth mainly occurring in spring and summer. It grows on exposed headlands and foredunes in Spinifex sericeus tussock grassland. Recorded north From Jervis Bay area (Currarong, Culburra and Seven Mile Beach National Park) to Queensland. Also on Lord Howe Island. Populations within Wamberal Lagoon NR, Myall Lakes NP, Bundjalung NP.	Recorded in the locality near Tiona, at Seven Mile Beach and near Submarine beach in Myall Lakes NP. Not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal
<i>Senecio spathulatus</i> Coast Groundsel	TSC Act: Endangered EPBC Act: Not listed	Coast Groundsel is a low-growing smooth-stemmed daisy. It occurs in Nadgee Nature Reserve (Cape Howe) and between Kurnell in Sydney and Myall Lakes National Park (with a possible occurrence at Cudmirrah) on frontal dunes.	The Coast Groundsel is known from scattered records within Booti Booti NP near Tiona and a number of records from Myall Lakes NP. the species was not detected during targeted searches undertaken on the site. Unlikely to occur.	Not considered a subject species for the proposal.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<b>AMPHIBIANS</b>				
<i>Crinia tinnula</i> Wallum Froglet	TSC Act: Vulnerable EPBC Act: Not Listed	The Wallum Froglet is restricted to coastal areas of south eastern Queensland and northern NSW where it occurs in fringing vegetation associated with wetlands with highly acidic, tannin stained waters that are usually dominated by paperbarks and tea trees (NPWS, 2005; Cogger, 2000).	The nearest records are from Wallis Island, Tuncurry and South Forster. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Litoria aurea</i> Green and Golden Bell Frog	TSC Act: Endangered EPBC Act: Vulnerable	Found in and around permanent swamps, lagoons, farm dams and on flood-prone river flats. The Green and Golden Bell Frog is found in eastern and south eastern NSW and far eastern Victoria, more often at low altitudes (Cogger, 2000).	The nearest records are from Smiths Lake, greater than 10km from the study area. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<b>REPTILES</b>				
<i>Hoplocephalus stephensii</i> Stephen's Banded Snake	TSC Act: Vulnerable EPBC Act: Not listed	Stephen's Banded Snake occurs on the coast and ranges from the central coast of NSW to south eastern Qld (Cogger, 2000). This species occurs in a variety of habitats including rainforest, wet and dry sclerophyll forest. The species dens among vines, in rock crevices and hollow trees and logs (Cogger et al. 2000). It is a partly arboreal species and feeds upon lizards, frogs, birds and small mammals. (Cogger et al. 2000).	The nearest records of the species occur in the Boomerang Beach area. Limited habitats occurring on the site. Considered unlikely to occur.	Not considered a Subject Species for the proposed development.
<b>BIRDS</b>				
<i>Anseranas semipalmata</i> Magpie Goose	TSC Act: Vulnerable EPBC Act: Not Listed	Magpie Geese generally occur in shallow water bodies / swamps associated with grasslands. This species feeds on seeds and tubers from native grasses, wild rice and spike rush (Australian Museum, 2003). The commencement of breeding is influenced by water level (OEH 2017).	The nearest records are from the wetlands of the Bulahdelah area greater than 20km south west of the study area. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development
<i>Oxyura australis</i> Blue-billed Duck	TSC Act: Vulnerable EPBC Act: Not Listed	Wide spread in NSW, but most common in southern Murray Darling Basin Area. Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation (DEC, 2007).	The nearest records are from the Wootton area greater than 20km west of the study area. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Ptilinopus magnificus</i> Wompoo Fruit-Dove	TSC Act: Vulnerable EPBC Act: Not listed	Occurs along the coast and coastal ranges from the Hunter River in NSW to Cape York Peninsula however are considered rare south of Coffs Harbour. Occurs in, or near rainforest, low elevation moist eucalypt forest and brush box forests. More often found in mature forests, however also found in remnant and regenerating rainforest (DEC, 2007, Schodde and Tidemann, 1993). They feed upon a range of tree and vine fruits and are locally nomadic, following food availability. Nests are located between three to ten metres above the ground in understorey trees and palms (OEH 2017).	The nearest records of the species are from the Littoral Rainforest occurring in the Tiona area. Only limited, isolated appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Ptilinopus superbus</i> Superb Fruit-dove	TSC Act: Vulnerable EPBC Act: Not listed	Found along the east coast of Australia from Cape York to north-eastern NSW, north of the Richmond River. Less common further south, and there are records of vagrants as far south of eastern Victoria and Tasmania (DEC, 2007). Occurs in rainforest and closed forests with an abundance of fruit producing plants such as the vines, figs, palms and shrubs. Local populations and/or individuals of this species are documented to be partially migratory, travelling north and south along the east coast in response to ripening fruits on which they feed (OEH, 2017).	There is a single record of the species are from the Smiths Lake area. Only limited, isolated appropriate habitat occurs within the subject site. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Ephippiorhynchus asiaticus</i> Black-necked Stork	TSC Act: Endangered EPBC Act: Not listed	This species forages in wetlands, mangroves, swamps, mudflats, dry floodplains, irrigated land and occasionally open grassy woodland (NPWS, 2000; NPWS, 2005). The nest is a large flat pile of sticks, grass, and rushes place in a tree, usually near water (NPWS, 2000).	There are numerous records of the species from wetlands in the locality however no appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Botaurus poiciloptilus</i> Australasian Bittern	TSC Act: Vulnerable EPBC Act: Not Listed	The Australasian Bittern occurs from southern Queensland to Tasmania and south eastern South Australia. In NSW this species has been recorded along the coast as well as inland wetlands and rivers (NPWS, 1999). The Australasian Bittern occurs in estuarine and freshwater wetlands with tall dense vegetation, including sedges, spike rushes, reeds and bulrush (NPWS, 2000; NPWS, 1999). Feeds mostly at night upon frogs, yabbies, spiders, insects, snails, small fish and mice (Schodde and Tidemann, 1993; NPWS, 2000).	There are numerous records of the species from wetlands in the locality however no appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Botaurus poiciloptilus</i> Black Bittern	TSC Act: Vulnerable EPBC Act: Not Listed	The Black Bittern is distributed from southern NSW, north to Cape York and along the entire northern coast to the Kimberley Region. This species occurs in dense vegetation, particularly amongst swamp she oaks and mangroves alongside streams, estuarine and terrestrial wetlands, tidal creeks and mudflats, and swamps. (NPWS, 2000).	There are numerous records of the species from wetlands in the locality however no appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Circus assimilis</i> Spotted Harrier	TSC Act: Vulnerable EPBC Act: Not Listed	The Spotted Harrier occurs throughout the Australian mainland, in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Preys includes terrestrial mammals (eg bandicoots, bettongs, and rodents), birds and reptile, occasionally insects and rarely carrion.	There are two records in the Bennett's Head area, however no appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	TSC Act: Vulnerable EPBC Act: Not Listed	The White-bellied Sea-Eagle is distributed along the coastline (including offshore islands) of mainland Australia and Tasmania. It also extends inland along some of the larger waterways, especially in eastern Australia. The species feeds on fish, turtles, sea snakes and occasionally terrestrial mammals. Nests are located in large trees usually less than 1km from the ocean, estuary or inland river.	Numerous records of the species in the locality however no nest sites were observed and the study area contains no appropriate habitat for the species.	Not considered a Subject Species for the proposed development.
<i>Hieraaetus morphnoides</i> Little Eagle	TSC Act: Vulnerable EPBC Act: Not Listed	The Little Eagle occurs in open eucalypt forest, woodland or open woodland. Sheoak or <i>Acacia</i> woodlands and riparian woodlands throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. This species preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	The Little Eagle is known from a number of records along the coastal strip from Holidays Point to Seal Rocks. There are numerous records along the Lakes Way from South Forester to Boomerang Beach. While no nest sites were located at the site, the species may utilise the study area for occasional foraging. Potentially occurring.	<b>Subject Species for the proposed development.</b>
<i>Lophoictinia isura</i> Square-tailed Kite	TSC Act: Vulnerable EPBC Act: Not Listed	Square-tailed Kites occur in open eucalypt forest, woodlands and sand plains of coastal and sub-coastal mainland Australia. This species is sparsely distributed through even preferred habitat and breeding pairs are known to occupy very large home ranges of at least 100 km <sup>2</sup> (Schodde and Tidemann, 1993; NPWS, 2000). Nests are a pile of sticks approximately 0.6 – 1 m in diameter, and are usually located in tall or emergent living trees that are near watercourses (NPWS, 2000; Schodde and Tidemann, 1993).	The nearest records are from Minimbah area, Hallidays point and one record in the Boomerang Beach area. The species is commonly recorded in the State Forests of the area including Wallinghat, Wang Wauk and Kirwarrak. While no nest sites were located at the site, the species may utilise the study area for occasional foraging. Potentially occurring.	<b>Subject Species for the proposed development.</b>
<i>Pandion haliaetus</i> Eastern Osprey	TSC Act: Vulnerable EPBC Act: Not Listed	The Osprey is distributed around to coast of Australia where they forage for fish in fresh, brackish, or saline waters of rivers, lakes, estuaries and inshore coastal waters (Schodde and Tidemann, 1993; NPWS, 2000). Nests are usually located near a suitable area of foraging habitat and are a bulky structure made from piled sticks, often positioned in a tall dead tree or artificial structures such as telecommunication towers or poles (Schodde and Tidemann, 1993; NPWS, 2000).	Numerous records of the species in the locality however no nest sites were observed and the study area contains no appropriate habitat for the species.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Burhinus grallarius</i> Bush Stone-curlew	TSC Act: Endangered EPBC Act: Not Listed	The Bush Stone-curlew is widespread in northern and north eastern Australia (NPWS, 2000). In NSW, this species is rare east of the Great Dividing Range, with the exception of isolated populations along the north coast. Bush Stone-curlews occur in sparsely grassed, lightly timbered open forest or woodland. Preferred habitat is often associated with water courses and woodlands of casuarinas, eucalyptus, however dry open grassland and cropland adjacent to woodland is also known to be utilised (Schodde & Tidemann, 1993; Garnett and Crowley, 2000). The Bush Stone-curlew nests on the ground and feed on a range of invertebrates, small vertebrates and, seeds and shoots (Garnett and Crowley, 2000).	The nearest records occur near Bungwahl along the Lakes Way and a second record is known from Wang Wauk SF greater than 20 km from the site. Highly unlikely to occur. Not considered a Subject Species for the proposed development.	Not considered a Subject Species for the proposed development.
<i>Esacus neglectus</i> Beach Stone-curlew	TSC Act: Critically Endangered EPBC Act: Not Listed	Recorded mostly around the north coast of Australia, between mid-north Western Australia and north-east NSW. Occurs on open beaches, islands, reefs, and estuarine intertidal sandflats and mudflats. Prefers beaches with nearby estuaries or mangroves. Nests are located on sand banks, spits or islands in estuaries among mangroves, or in sand surrounded by short grasses and scattered casuarinas (DEC, 2007)	The Beach Stone-curlew is known from only 2 records in the locality, both of which occur on the sand islands of Wallis Lake. The study area contains no appropriate habitat for the species.	Not considered a Subject Species for the proposed development.
<i>Haematopus fuliginosus</i> Sooty Oystercatcher	TSC Act: Vulnerable EPBC Act: Not listed	The Sooty Oystercatcher is distributed around the entire coastline and islands around Australia. Throughout its range, the Sooty Oystercatcher primarily occurs on rocky beaches, rocky shores, rocky headlands, rocky shelves and beaches, and offshore islands, and very rarely on sandy beaches and estuarine tidal flats (NPWS, 2000; Scodde & Tidemann, 1993). This species forages on exposed rock and coral at low tide for limpets, mussels, and crustaceans (NPWS, 2000). Nests are a shallow depression in sand above the high tide mark, or a cleft in rocks that may be built up with pebbles (NPWS, 2000; Scodde & Tidemann, 1993).	The Sooty Oystercatcher is known from over 20 records in the locality however these are generally confined to the rocky foreshores and estuarine environments of Wallis and Smith Lakes. No appropriate habitat occurs within the subject site. Not considered a Subject Species for the proposed development.	Not considered a Subject Species for the proposed development.
<i>Haematopus longirostris</i> Pied Oystercatcher	TSC Act: Vulnerable EPBC Act: Not listed	The Pied Oystercatcher occurs around the entire coastline of Australia. It favours beaches, intertidal flats and sand banks and occasionally rocky headlands. Molluscs have been noted to be a staple food source; however, worms, crabs and small fish may be taken (NPWS, 2000; Scodde & Tidemann, 1993). Pied Oystercatchers primarily nests on coastal or estuarine beaches and may occasionally use salt marsh or grassy areas. Nests are shallow scrapes in the sand above the high tide mark or amongst low growth behind the beach.	The Pied Oystercatcher is known from over 80 records in the locality however these are generally confined to the beaches and estuarine environments of Wallis and Smith Lakes. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Charadrius mongolus</i> Lesser Sand-plover	TSC Act: Vulnerable EPBC Act: Endangered	The Lesser Sand Plover is a migratory species that breeds in eastern Siberia, southern Mongolia, western China and the Himalayas, migrating to the coasts of eastern and southern Africa, the Middle East, India, South-east Asia and Australia. The species migrates to the Australian coast between September and March where it occurs around the Australian coastline but is most abundant in the Gulf of Carpentaria and along the east coast of Queensland and northern NSW (Species Profile, DEC, 1999). Whilst in Australia the species is found on mudflats, white sandy beaches, estuaries and tidal areas in mangroves. The Lesser Sand Plover primarily feeds upon crustaceans, molluscs, insects, and marine worms. It roosts during high tide on sandy beaches, spits and rocky shores (OEH 2017).	This species is known from a single record near Main Beach, Forster. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Calidris tetenuirostris</i> Great Knot	TSC Act: Vulnerable EPBC Act: Not Listed	Wader species that occurs within sheltered coastal habitats with large intertidal mudflats of sandflats. It is often recorded on sandy beaches close to mudflats, sandy spits and islets and occasionally on exposed reefs or rock platforms (OEH, 2017)	This species is known from a single record from the sand spit near Point Road, Tuncurry. No appropriate habitat occurs within the subject site..	Not considered a Subject Species for the proposed development.
<i>Limosa limosa</i> Black-tailed Godwit	TSC Act: Vulnerable EPBC Act: Migratory (CAMBA, JAMBA, Bonn)	Non breeding migrant to Australia where it is more frequently recorded around the Hunter River estuary. This species has also been recorded within the Murray-Darling Basin, on the western slopes of the Northern Tablelands and in the far north-western corner of the state (OEH 2017). Prefers sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats (DEC, 2007).	This species is known from a single record near the Forster CBD. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Xenus cinereus</i> Terek Sandpiper	TSC Act: Vulnerable EPBC Act: Migratory	The Terek Sandpiper is a non-breeding migrant to Australia between September and May (NPWS, 2000). In Australia, this species is distributed around the east, north and west coasts of Australia (NPWS, 1999). The Terek Sandpiper occurs on tidal mudflats, estuaries, shores and reefs of offshore islands and coastal swamps (NPWS, 2000). The Terek Sandpiper feeds on a wide variety of invertebrates including crustaceans, worms, small shell fish and insect larvae (NPWS, 1999).	This species is known from 2 records near the mouth of Wallis Lake. No appropriate habitat occurs within the subject site..	Not considered a Subject Species for the proposed development

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Sterna albifrons</i> Little Tern	TSC Act: Endangered EPBC Act: Migratory	The Little Tern occurs around the coast to Australia from mid WA, around northern and eastern Australia to the east coast of Tasmania. Throughout its range, Little Terns are predominantly found in coastal waters, bays, shallow inlets salt or brackish lakes, with sheltered environments preferred (NPWS, 1999, NPWS; 2000) and feeds upon small fish, crustaceans, insects, annelids and molluscs (NPWS, 1999). Little Terns nest in small scattered colonies and nests are small scrapes, usually located on low dunes, or sandy beaches near the mouths of estuaries, or to adjacent coastal lakes and islands (NPWS, 1999; NPWS, 2000; Scodde & Tidemann, 1993). Their breeding period is in spring and summer.	The Little Tern is known from over 400 records in the locality however these are generally confined to the beaches and estuarine environments of Wallis Lake. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Calyptorhynchus lathamii</i> Glossy Black Cockatoo	TSC Act: Vulnerable EPBC Act: Not Listed	The Glossy Black-Cockatoo primarily feeds upon the fruit cones of Allocasuarina species and are more often found in moist and dry coastal forests timbered watercourses and inland woodland (Schodde and Tidemann, 1993; NPWS, 2000). They are distributed in a wide coastal band on the east coast of Australia from central Queensland, south to Victoria. A separate population occurs on Kangaroo Island, SA (Schodde and Tidemann, 1993; NPWS, 2000). The Glossy Black-Cockatoo requires hollow bearing trees located within close proximity to good stands of feeding habitat for nesting (NPWS, 2000).	The Glossy Black-Cockatoo is known from scattered records in areas south of Wallis Lake and in the Smiths Lake Area. The subject site will result in the removal of one small Allocasuarina which is unlikely to be utilised. Unlikely to occur	Not considered a Subject Species for the proposed development.
<i>Glossopsitta pusilla</i> Little Lorikeet	TSC Act: Vulnerable EPBC Act: Not Listed	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. The little Lorikeet forages primarily in the canopy of open <i>Eucalyptus</i> forest and woodland, yet also finds food in <i>Angophora</i> , <i>Melaleuca</i> and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards Nests in proximity to feeding areas if possible, selecting hollows in smooth-barked Eucalypts.	The Little Lorikeet is known from a number of records scattered throughout the coastal forests of the local area. The species may utilise the study area for occasional foraging. Potentially occurring.	<b>Subject Species for the proposed development.</b>
<i>Lathamus discolor</i> Swift Parrot	TSC Act: Endangered EPBC Act: Critically Endangered	The Swift Parrot breeds in Tasmania between spring and summer and migrate to the mainland during winter where they disperse widely across south eastern Australia (NPWS, 2000; Scodde & Tidemann, 1993) Swift Parrots forage in woodlands, riparian vegetation, and also remnant patches of mature eucalypts in agricultural areas where they feed on nectar, lerps and other insects from eucalypt foliage (Swift Parrot Recovery Team, 2001, Schodde and Tidemann, 1993).	The Swift Parrot is known from 9 records scattered throughout the coastal forests of the local area. The species may utilise the study area for occasional foraging. Unlikely to occur. Subject Species for the proposed development.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Neophema pulchella</i> Turquoise Parrot	TSC Act: Vulnerable EPBC Act: Not Listed	Turquoise Parrots are considered to be birds of the forest edge, open woodland and native grassland often in rocky country and are known to particularly favour White Box, Yellow Box and Blakely's Red Gum Woodlands. Turquoise Parrots forage almost exclusively on the ground (Crome and Shields, 1999). This species nest in tree hollows, logs or posts from August to December (NPWS, 2000).	The nearest records of the species are from Myall Lakes NP and near Nabitac. No appropriate habitat occurs within the subject site.	Not considered a Subject Species for the proposed development.
<i>Ninox connivens</i> Barking Owl	TSC Act: Vulnerable EPBC Act: Not listed	The Barking Owl occurs in a variety of habitats including eucalypt woodland, open forest, swamp woodlands and timber along water courses, however; the ideal habitat for the Barking Owl is open country with a good choice of large hollow trees for nesting. This species also has a distinct preference to be close water (Hollands, 1991; NPWS, 2000). Home ranges for this species may be between 30 and 200 hectares (NPWS, 2000; Schodde & Tidemann, 1993).	Scattered records of the Barking Owl are known from Minimbah, Wang Wauk SF and near Boomerang Beach. Unlikely to utilise the habitats of the site.	Not considered a Subject Species for the proposed development.
<i>Ninox strenua</i> Powerful Owl	TSC Act: Vulnerable EPBC Act: Not listed	This species occurs in a range of habitats including open woodland, open forest, tall moist forest and rainforest (NPWS, 2000). The Powerful owl has a very large home range of 800 to 1000 ha per breeding pair (NPWS, 2005). The Powerful Owl requires trees with large hollows that are at least 50 cm deep and 12 – 40 m above the ground (NPWS, 2000; Scodde & Tidemann, 1993).	The Powerful Owl is known from numerous records in the local area however these records are grouped in three main areas: Pacific Palms, Hallidays Point and Wang Wauk, possibly representing the large home range of pairs. The study area does not contain any potential nesting habitat and is unlikely to be utilised for hunting by the species.	Not considered a Subject Species for the proposed development.
<i>Tyto capensis</i> Eastern Grass Owl	TSC Act: Vulnerable EPBC Act: Not listed	The Eastern Grass Owl has been recorded in all mainland states of Australia, but is more commonly recorded in northern and north eastern Australia (NPWS, 2000). Eastern Grass Owls are mainly found in tall grass including tussock grasslands, grass tussocks in swampy areas, grassy plains, swamps, coastal dunes, cane grass and other crops, tree lined creeks, and sedges on floodplains (NPWS, 2000; Garnett and Crowley, 2000). This species nests on the ground which may resemble a trampled platform in a large tussock or heavy growth (NPWS, 2000).	Known from scattered records in Tuncurry, Hallidays Point and Pipers Bay. No appropriate habitat within the subject site. Highly Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Tyto novaehollandiae</i> Masked Owl	TSC Act: Vulnerable EPBC Act: Not listed	Masked Owls utilise a broad range of habitats, including open forest and woodland with a sparse understorey and adjacent open areas (Hollands, 1991; Debus & Rose, 1994). Essential habitat features include the presence of suitable roosting and nesting hollows and an abundant supply of ground-dwelling mammals (Higgins 1999; Kavanagh, 1996).	The Masked Owl is known from numerous records in the local area including Forster and Tuncurry townships Pacific Palms and forests of the Bungwahl and Bulahdelah areas. The study area does not contain any potential nesting habitat but may be utilised for hunting by the species.	Considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Tyto tenebricosa</i> Sooty Owl	TSC Act: Vulnerable EPBC Act: Not listed	Sooty Owls occur primarily in closed forests (rainforests) and tall open forests (wet sclerophyll forest). (Debus, 1998). Essential habitat features include the presence of suitable nesting hollows as provided in old growth forests and a supply of arboreal or scansorial mammals (Debus 1998, NPWS, 2000). Estimated inferred home-ranges for the Sooty Owl are 2 -8 km <sup>2</sup> per pair (Debus, 1998).	Within the locality the Sooty Owl is known from tall forest areas in Kirwarrak SF and Wallinghat, Bachelor and Wang Wauk State Forests and a few records are known from the Pacific Palms area. No appropriate nesting or hunting habitat occurs in the study area and the species is unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Climacteris picumnus</i> subsp. <i>victoriae</i> Brown Treecreeper Eastern subspecies	TSC Act: Vulnerable EPBC Act: Not listed	The eastern subspecies <i>Climacteris picumnus victoriae</i> occurs in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys (DEC, 2007). The western boundary of the range of the eastern subspecies <i>Climacteris picumnus victoriae</i> runs approximately through Wagga Wagga, Temora, Forbes, Dubbo and Inverell (DEC, 2007). As with most of the treecreepers, the Brown Treecreeper nests in hollows of trees (Longmore, 1991).	The nearest record of the species is from Blueys Beach area however this is may be an incorrect identification. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Pyrholaemus sagittatus</i> Speckled Warbler	TSC Act: Vulnerable EPBC Act: Not Listed	Patchy distribution along the east of Australia, through south east Queensland, eastern NSW and Victoria. Most frequently recorded around the hill sand tablelands of the Great Dividing Range., and occasionally from the coast. Occurs in a range of habitats, however, more often recorded in open dry eucalypt woodland with a grassy understorey and sparse shrub layer and often on rocky ridges or in gullies (OEH 2017).	The Speckled Warbler is known from a single record greater than 10km from the study area. Unlikely to utilise the study area for foraging.	Not considered a Subject Species for the proposed development.
<i>Xanthomyza phrygia</i> Regent Honeyeater	TSC Act: Endangered EPBC Act: Endangered, and migratory (JAMBA)	The Regent Honeyeater is predominantly found on the western slopes of the Great Dividing Range however it is often recorded along the eastern flank of this range. (Scodde & Tidemann, 1993; OEH 2017). The Regent Honeyeater generally inhabits drier woodlands and open forests with an abundance of nectar producing Eucalypts including Box-Ironbark woodland in the west and <i>Eucalyptus robusta</i> / <i>Melaleuca quinquenervia</i> forests on the coast. While nectar represents a major food source, insects, manna, lerps and fruit also comprise the diet of this species (NPWS, 1999; Scodde & Tidemann, 1993). The Regent Honeyeater is partly migratory travelling to the south and west during spring to breed. Nests are cup-shaped, located in the fork of a tree or clump of mistletoe between one and twenty metres above the ground.	The Regent Honeyeater is known from only 4 records scattered throughout the hinterland forests of the local area. Unlikely to utilise the study area for foraging.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Epthianura albifrons</i> White-fronted Chat	TSC Act: Vulnerable EPBC Act: Not Listed	The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia. It occupies foothills and lowlands up to 1000 m above sea level. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas (OEH 2017)	This species is known from a small number of records from the foreshore and wetlands adjoining the eastern side of Wallis lake in Booti Booti National Park. Highly Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Pomatostomus temporalis temporalis</i> Grey-crowned Babbler Eastern subspecies	TSC Act: Vulnerable EPBC Act: Not listed	Found throughout large areas of northern Australia and in south-eastern Australia. The eastern subspecies occurs in NSW on the western slopes of the Great Dividing Range and on the Western Plains, reaching as far west as Louth and Hay. Also occurs in woodland in the Hunter Valley as well as several locations on the North Coast of NSW (DECC, 2008). Forages on invertebrates within Box-Gum Woodlands on the slopes, Box-Cypress Pin and Open Box Woodland on alluvial plains. The species lives in family groups of up to 15 birds and build and maintain dome-shaped stick nests within a territory of 1-50 ha (average size is 10 ha) (DECC, 2008).	Records of the Grey-crowned Babbler (eastern subspecies) in the locality are generally confined to the forests of the foothills of the Coolongolook and Nahiab areas however, there is one record near Minimbah. Highly Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Daphoenositta chrysoptera</i> Varied Sittella	TSC Act: Vulnerable EPBC Act: Not Listed	The Varied Sittella most of mainland Australia except the treeless deserts and open grasslands. This species occurs in eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and <i>Acacia</i> woodland is sedentary and inhabits. It feeds on arthropods gleaned from crevices in rough or decorticated bark, and builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.	The Varied Sittella is known from forested areas throughout the local area and although there is one record from Tuncurry, it is generally absent from urban areas including Pacific Palms. Highly unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Artamus cyanopterus cyanopterus</i> Dusky Woodswallow	TSC Act: Vulnerable EPBC Act: Not Listed	The Dusky Woodswallow is often reported in woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests; very occasionally in moist forests or rainforests (Higgins and Peter 2002). Nesting in the Dusky Woodswallow occurs from late September to late February, with eggs present between September and January, although most eggs are present between October and early December (Higgins and Peter 2002). The Dusky Woodswallow primarily eats invertebrates, mainly insects, which are captured whilst hovering and sallying above the canopy or over water.	There are numerous records of the Dusky Woodswallow from South Forster to through Booti Booti NP. It has not been recorded in residential areas of Forster, Tuncurry or Pacific Palms. Unlikely to occur.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
MAMMALS				
<i>Dasyurus maculatus maculatus</i> Spotted-tailed Quoll	TSC Act: Vulnerable EPBC Act: Endangered (SE mainland population)	The Spotted-tailed Quoll occurs along the east coast from south east Queensland to South Australia and Tasmania in a wide range of habitat types including dry and moist sclerophyll forests and woodlands, rainforest, coastal heathland, and riparian forest. This species been occasionally sighted in treeless areas, rocky outcrops and grazing lands. The Spotted-tailed Quoll shelters and dens in small caves, fallen logs and tree hollows and may utilise numerous dens within its home range which has been estimated to be between 800 ha to 20 km <sup>2</sup> (OEH 2017).	The Quoll is known from >100 records in the locality and is known from Tiona, Pacific Palms, Seal Rocks and all State Forests in the area. The Quoll is however absent from the Forster/Tuncurry residential areas. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Phascogale tapoatafa</i> Brush-tailed Phascogale	TSC Act: Vulnerable EPBC Act: Not listed	The Brush-tailed Phascogale has a patchy distribution around the coast of mainland Australia (NPWS, 1999). The Brush-tailed Phascogale is a largely arboreal species that primarily occurs in dry forests and woodlands with an open or sparse ground cover of herbs, grasses shrubs and a moderate density of trees and shrubs in the midstratum (Soderquist 1995). Males have a home range of up to 100 ha, while females occupy a home range of 20 to 60 ha (NPWS, 1999).	The Phascogale is generally restricted to the north of the study area and has been recorded in Tuncurry, Failford, Holidays point areas. Only two scattered records occur in the south at Bungwahl and Mayer's Flat. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Phascolarctos cinereus</i> Koala	TSC Act: Vulnerable EPBC Act: Not listed	The Koala occurs in eucalypt woodlands and forests throughout eastern Australia (NPWS, 2000). The Koala feeds almost exclusively on the foliage of particular eucalypts, and may prefer certain species within any local or regional area (Strahan, 1998; Callaghan et al, 2002).	The Koala occurs within the majority of the habitats in the area, the species is not known to occur in the residential areas of Forster. The nearest records occur at Tuncurry and South Forster near Booti Booti NP. The site does not contain preferred habitats. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Cercartetus nanus</i> Eastern Pygmy-possum	TSC Act: Vulnerable EPBC Act: Not listed	The Eastern Pygmy-possum occurs from south east Queensland through to south eastern South Australia and in Tasmania (OEH 2017). In NSW it extends from the coast as far inland as the Pilliga, Dubbo, Parkes and Wagga Wagga. The species has been recorded rainforest, wet and dry sclerophyll forest, and tree heath. In most areas they appear to prefer woodlands and heath (OEH 2017). The species primarily feeds upon nectar from banksias, leptospermum, eucalypts and bottlebrushes, but may feed upon insects and soft fruits (Strahan, 1998). Eastern Pygmy-possums shelter in a spherical nest (60 mm diameter) in tree hollows, rotten stumps, abandoned bird-nests, Possum dreys, forks of tea-tress and thickets of vegetation (Strahan 1998).	The Eastern Pygmy-possum is only known from 4 records in the locality, Booti Booti NP, Coolongolook and Darawank. Unlikely to occur.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Petaurus australis</i> Yellow-bellied Glider	TSC Act: Vulnerable EPBC Act: Not listed	The Yellow-bellied Glider is found in tall mature Eucalypt Forest and they feed on a range of sources including winter-flowering Eucalypts which provide nectar and pollen (NPWS, 2000; Readers Digest 1997). They also feed upon the sap of Eucalypts in which they chew V-shaped incisions to collect the sap. Yellow-bellied Gliders den in large tree hollows (NPWS, 2000).	The closest records of the Yellow-bellied Glider occur in the Elizabeth Beach/Boomerang Beach area. The site does not contain preferred feed trees, no characteristic v-mark notches were observed in the trees on site and the hollows are not large enough for the species. As such the species is considered unlikely to occur at the site.	Not considered a Subject Species for the proposed development.
<i>Petaurus norfolcensis</i> Squirrel Glider	TSC Act: Vulnerable EPBC Act: Not listed	The Squirrel Glider is distributed in eastern Australia from northern Queensland, through eastern NSW to Victoria (NPWS, 2000). The Squirrel Glider occurs in dry sclerophyll forest and woodland (Strahan, 1998). This species feeds upon nectar, pollen, flowers, insects, and sap of particular eucalypts (Strahan, 1998; NPWS, 1999). The Squirrel Glider dens in hollow bearing trees, and often dens in family groups (Strahan, 1998; NPWS, 2000). Home ranges have been estimated at between 0.65 to 8.55 ha, with movements tending to be greater for males (NPWS, 1999).	The Squirrel Glider is known from Numerous records from the locality with extensive populations known throughout Tuncurry, Forster, Pacific Palms. The site does contain potential habitat and as such the species is considered potentially occurring at the site.	<b>Subject Species for the proposed development.</b>
<i>Petauroides volans</i> Greater Glider	TSC Act: Not listed EPBC Act: Vulnerable	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1200 m above sea level. is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers (Kehl & Borsboom 1984; Kavanagh & Lambert 1990; van der Ree et al., 2004). It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows	The Greater Glider is known from numerous west sclerophyll/Dry sclerophyll forests occurring in the locality. There are scattered records at Smiths Lake Pacific Palms and Halidays point. The site does not contain preferred feed trees and hollows are not large enough for the species. As such the species is considered unlikely to occur at the site.	Not considered a Subject Species for the proposed development.
<i>Potorous tridactylus</i> <i>tridactylus</i> Long-nosed Potoroo	TSC Act: Vulnerable EPBC Act: Vulnerable	The Long-nosed Potoroo is known to occur in a wide variety of habitats including moist and dry forests, wet heathland and cool temperate rainforests with dense layers of grasses, ferns, vines or shrubs (NPWS, 2000).	The closest records of the Long-nosed Potoroo are from south of Smiths Lake in Myall NP. The site does not represent potential habitat for the species. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Macropus parma</i> Parma Wallaby	TSC Act: Vulnerable EPBC Act: Not listed	Range is confined to the coast and ranges of central and northern NSW (previously distributed from north-eastern NSW to south east near Bega)Optimal habitat for the Parma Wallaby is documented to be wet sclerophyll forest with a thick, shrubby understorey associated with grassy patches; however this species can occur in a range of habitats including wet and dry forests and rainforests (Strahan, 1998). Feeds at night on grasses and herbs in more open eucalypt forest and the edges of nearby grassy areas (OEH 2017).	The Parma Wallaby is known from Wallinghat State Forest. The site does not represent potential habitat for the species. Unlikely to occur.	Not considered a Subject Species for the proposed development.

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Thylogale stigmatica</i> Red-legged Pademelon	TSC Act: Vulnerable EPBC Act: Not listed	This species is restricted to areas of subtropical rainforest. In northern Qld, this species has a home range of 1–4ha, with animals leaving the forest to feed on grass. In NE NSW, this species is more confined to rainforest where it feeds largely on fallen fruit and browses on shrubs. Their diet is composed of fallen leaves, fruit, ferns, fungi and native grasses. (NPWS, 2005)	The Red-legged Pademelon is known from only 2 records from Wallinghat State Forest. The site does not represent potential habitat for the species. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Pteropus poliocephalus</i> Grey-Headed Flying-Fox	TSC Act: Vulnerable EPBC Act: Vulnerable	The Grey-headed Flying-fox occurs in a range of habitats including subtropical and temperate rainforests, dry and wet sclerophyll forests, Banksia woodland, heaths and Melaleuca swamps (Duncan et al, 1999; NPWS, 2001).	Numerous records of the species in the locality. Likely to utilise the site for foraging.	<b>Subject Species for the proposed development.</b>
<i>Syconycteris australis</i> Common Blossom-bat	TSC Act: Vulnerable EPBC Act: Not listed	The Common Blossom-bat occurs in coastal areas of north eastern NSW and eastern Qld (NPWS, 2000; Strahan, 1998). The Common Blossom-bat usually roosts in rainforest and feeds upon nectar and pollen in adjacent heathland and paperbark swamps (NPWS, 2000).	The Common Blossom-bat is known from scattered records in the locality at Hallidays Point and in Booti Booti NP near Tiona. The site does not contain preferred habitats. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Saccolaimus flaviventris</i> Yellow-bellied Sheathtail-bat	TSC Act: Vulnerable EPBC Act: Not Listed	The Yellow-bellied Sheathtail-bat occurs across northern Australia, north of the Tropic of Capricorn, extending south through eastern NSW to Victoria and SA. There are only a few scattered records of this species in NSW (NPWS, 2000). The Yellow-bellied Sheathtail-bat occurs in a wide range of habitats, and primarily roost in tree hollows, however is known to roost in abandoned Sugar Glider nests and have also been observed roosting on the walls of buildings in broad daylight (Churchill, 1998; Strahan, 1998).	The species is known from scattered records in the locality at Failford, Green Point, Cape Hawke and Smiths Lake. While the species may forage above the subject site the proposed development area contains hollow bearing trees that could be potentially utilised for roosts..	<b>Subject Species for the proposed development.</b>
<i>Mormopterus norfolkensis</i> Eastern Freetail-bat	TSC Act: Vulnerable EPBC Act: Not listed	This species has been recorded from a variety of habitats including Woodland, Dry and Wet sclerophyll forests and has been recorded foraging along a river within Rainforest (Strahan, 1998; Churchill, 1998). It is believed that the Eastern Freetail-bat is primarily a tree roosting species however; it has been recorded within the roof of a hut (Strahan, 1998).	The species is known from records at Failford, Tuncurry, Forster, Green Point, Pacific Palms and Smiths Lake. The species may forage above the subject site the proposed development area contains hollow bearing trees that could be potentially utilised for roosts..	<b>Subject Species for the proposed development.</b>
<i>Falsistrellus tasmaniensis</i> Eastern False Pipistrelle	NSW: Vulnerable EPBC Act: Not Listed	The Eastern False Pipistrelle inhabits sclerophyll forests and woodlands. The Eastern False Pipistrelle is known to roost in tree hollows although has been recorded roosting in Jenolan caves and in old wooden houses (Churchill 1998; Strahan, 1998).	The species is known from scattered records in the locality at Failford, Darawank, Forster and Smiths Lake. While the species may forage above the subject site the proposed development area contains hollow bearing trees that could be potentially utilised for roosts.	<b>Subject Species for the proposed development.</b>

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Kerivoula papuensis</i> Golden-tipped Bat	TSC Act: Vulnerable EPBC Act: Not listed	Generally confined to Rainforest and wet sclerophyll forest however has been recorded within open forest habitats (NPWS, 2000). Feeds upon a variety of insects, however, a major food source appears to be orb weaving spiders. Roosts in disused bird nests and hollow buttresses of rainforest trees. (NPWS, 2005b).	The nearest records of the Golden-tipped Bat are from Wallinghat State Forest greater than 20km from the subject site. The site does not represent potential habitat for the species. Unlikely to occur.	Not considered a Subject Species for the proposed development.
<i>Miniopterus australis</i> Little Bentwing-bat	TSC Act: Vulnerable EPBC Act: Not listed	The Little Bentwing-bat occurs along the east coast of Australia from north eastern Queensland to the central coast of NSW (NPWS, 2000; NPWS, 2005). This species has been noted to predominantly forage between the canopy and the understorey within well timbered habitats including moist and dry sclerophyll forest, woodlands, rainforest, Melaleuca swamps, and dense coastal banksias (Strahan, 1998; NPWS, 2005; NPWS, 2000).	The Little Bentwing-bat is known from numerous records in the locality. The site represents potential foraging habitat but does not contain any significant roosting habitats.	<b>Subject Species for the proposed development.</b>
<i>Miniopterus schreibersii oceanensis</i> Eastern Bentwing-bat	TSC Act: Vulnerable EPBC Act: Not listed	The Eastern Bentwing-bat occurs in eastern Australia from north Queensland to far south east SA. In NSW they are found along the coast and western slopes, including high elevations of the Great Dividing Range (NPWS, 2000). This species predominantly forages above the tree canopy in a range of well timbered habitats including rainforest, paperbark swamps, heaths, woodlands and sclerophyll forests (Strahan, 1998;).	The Eastern Bentwing-bat is known from numerous records in the locality. The site represents potential foraging habitat but does not contain any significant roosting habitats.	<b>Subject Species for the proposed development</b>
<i>Myotis macropus</i> Southern Myotis	TSC Act: Vulnerable EPBC Act: Not listed	The Southern Myotis is thought to occur along the east coast of Australia from south east Queensland to Victoria and South Australia, and inland waterways of the Murray and Darling River Systems (Duncan et al., 1999). It is often found roosting near bodies of still or slowly moving water where they almost exclusively forage, catching aquatic insects and small fish by raking the surface with its specialised and relatively large claws (Strahan, 1998; Duncan et al., 1999). This species roosts in colonies that may occur in tree hollows, caves, mines, tunnels, dense vegetation, and disused birds nests, or underneath bridges and buildings (NPWS, 2000; Duncan, 1999).	The Southern Myotis is known from scattered records in the locality at Nabic, Forster and Smiths Lake. No appropriate habitat occurs in the Study area. Unlikely to occur.	Not considered a Subject Species for the proposed development
<i>Scoteanax rueppellii</i> Greater Broad-nosed Bat	TSC Act: Vulnerable EPBC Act: Not listed	The Greater Broad-nosed Bat occurs in a variety of habitats from woodland, moist and dry eucalypts forest and rainforest (NPWS, 2000; Duncan, 1999). This species feeds upon large flying insects, and is also known to feed upon other species of bats (NPWS, 2000; Strahan, 1998). While little is known about breeding habitat for this species, the Greater Broad-nosed Bat has been found roosting in tree hollows, cracks and fissures in the trunk and boughs of stags, under exfoliating bark, and roof spaces of buildings (Duncan et al., 1999; Strahan, 1998).	The Greater Broad-nosed Bat is known from scattered records in the locality at Failford, Forster/Tuncurry, Pacific Palms and Smiths Lake. The species may utilise the site for foraging and roosts.	<b>Subject Species for the proposed development.</b>

**Table A.2 - Threatened Fauna Species from the Locality**

Species Name/Common Name	Legal Status	Habitat and Distribution	Local Occurrence and Potential Habitats in the Site	Identification of Subject Species
<i>Vespdelus troughtoni</i> Eastern Cave Bat	TSC Act: Vulnerable EPBC Act: Not listed	Generally distributed among a broad band associated within both sides of the Great Dividing Range from Cape York to Kempsey. Some records further south including within the Great Lakes, Lake Macquarie and Cessnock LGA's. Occurs in wet and dry sclerophyll forest, and roosts in caves, crevices and mine shafts (DEC, 2007).	The Eastern Cave Bat is known from only 3 records in the locality at Pacific Palms and Tuncurry. The subject site contains hollow bearing trees and potential foraging habitat.	<b>Subject Species for the proposed development.</b>
<i>Pseudomys gracilicaudatus</i> Eastern Chestnut Mouse	TSC Act: Vulnerable EPBC Act: Not listed	The Eastern Chestnut Mouse occurs from north eastern Queensland along the coast and ranges to central NSW (NPWS, 2000). It is more often found in heathland and is most common in wet heath and swampy areas, where it colonises regenerating areas of vegetation following a fire (Monamy and Fox, 2000). The Eastern Chestnut Mouse has been observed to reach maximum population density in heathland that is regenerating after fire (Strahan, 1998). Nests may be constructed of grass above ground, or be part of a burrow complex. Home ranges are generally less than 0.5 ha, however, individuals have been known to move up to 250m (Strahan, 1998).	The Eastern Chestnut Mouse is known from Minimbah, Booti Booti near Green Point Pacific Palms and Smiths Lake. The site does not contain preferred habitats. Unlikely to occur.	Not considered a Subject Species for the proposed development
<i>Pseudomys novaehollandiae</i> New Holland Mouse	TSC Act: Not listed EPBC Act: Vulnerable	The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. It is known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes.(OEH 2017).	The New Holland Mouse is known from Minimbah, Numerous records from Booti Booti near Cape Hawkwe to Tiona, and from scattered records in Wallinghat SF. The site does not contain preferred habitats. Unlikely to occur.	Not considered a Subject Species for the proposed development
INSECTS				
<i>Petalura gigantea</i> Giant Dragonfly	TSC Act: Endangered EPBC Act: Not listed	<i>The Giant Dragonfly lives in permanent swamps and bogs with some free water and open vegetation. Adults emerge late October and are short-lived, surviving for one summer, and spend most of their time settled on low vegetation on or adjacent to the swamp. They hunt for flying insects over the swamp and along its margins. Females lay eggs into moss, under other soft ground layer vegetation, and into moist litter and humic soils, often associated with groundwater seepage areas within appropriate swamp and bog habitats.</i>	The Giant Dragonfly is known from a single record from the wetlands of Seal Rocks. No appropriate habitat occurs in the Study area. Unlikely to occur.	Not considered a Subject Species for the proposed development.

## Appendix B

### EPBC Protected Matters Search Report





# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 23/03/17 14:10:09

[Summary](#)

[Details](#)

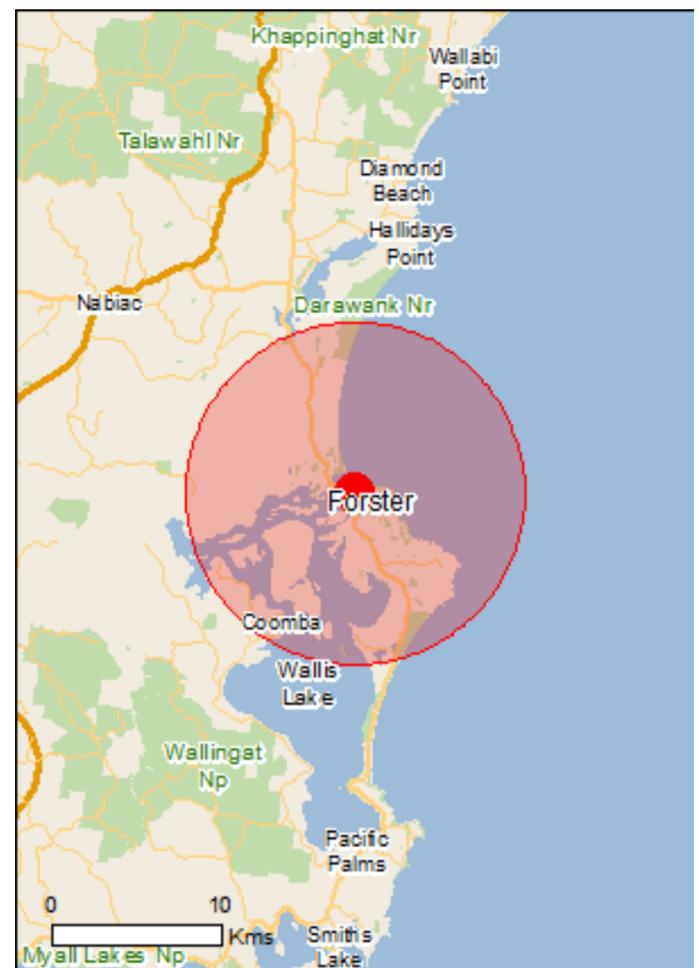
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

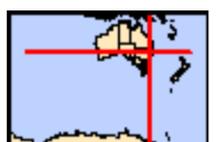
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 10.0Km



# Summary

## Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	1
<a href="#">Listed Threatened Ecological Communities:</a>	4
<a href="#">Listed Threatened Species:</a>	66
<a href="#">Listed Migratory Species:</a>	61

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Land:</a>	3
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	87
<a href="#">Whales and Other Cetaceans:</a>	16
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Commonwealth Reserves Marine:</a>	None

## Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<a href="#">State and Territory Reserves:</a>	10
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	38
<a href="#">Nationally Important Wetlands:</a>	1
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

### Commonwealth Marine Area

[\[ Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside the Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

#### Name

EEZ and Territorial Sea

### Marine Regions

[\[ Resource Information \]](#)

If you are planning to undertake action in an area in or close to the Commonwealth Marine Area, and a marine bioregional plan has been prepared for the Commonwealth Marine Area in that area, the marine bioregional plan may inform your decision as to whether to refer your proposed action under the EPBC Act.

#### Name

[Temperate East](#)

### Listed Threatened Ecological Communities

[\[ Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
<a href="#">Littoral Rainforest and Coastal Vine Thickets of Eastern Australia</a>	Critically Endangered	Community likely to occur within area
<a href="#">Lowland Rainforest of Subtropical Australia</a>	Critically Endangered	Community likely to occur within area
<a href="#">Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion</a>	Endangered	Community likely to occur within area
<a href="#">Subtropical and Temperate Coastal Saltmarsh</a>	Vulnerable	Community likely to occur within area

### Listed Threatened Species

[\[ Resource Information \]](#)

Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<a href="#">Dasyornis brachypterus</a> Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely

Name	Status	Type of Presence
<a href="#">Diomedea antipodensis gibsoni</a> Gibson's Albatross [82270]	Vulnerable	to occur within area Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Erythrotriorchis radiatus</a> Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Fregetta grallaria grallaria</a> White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Limosa lapponica baueri</a> Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
<a href="#">Pterodroma leucoptera leucoptera</a> Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
<a href="#">Pterodroma neglecta neglecta</a> Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche bulleri platei</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta cauta</a> Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche cauta steadi</a> White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<b>Fish</b>		
<a href="#">Epinephelus daemeli</a> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
<b>Frogs</b>		
<a href="#">Litoria aurea</a> Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Mixophyes balbus</a> Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
<b>Mammals</b>		
<a href="#">Balaenoptera borealis</a> Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area
<a href="#">Balaenoptera physalus</a> Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species

Name	Status	Type of Presence
<a href="#">Petauroides volans</a> Greater Glider [254]	Vulnerable	habitat known to occur within area Species or species habitat likely to occur within area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Potorous tridactylus tridactylus</a> Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
<a href="#">Pseudomys novaehollandiae</a> New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
<b>Plants</b>		
<a href="#">Allocasuarina defungens</a> Dwarf Heath Casuarina [21924]	Endangered	Species or species habitat known to occur within area
<a href="#">Allocasuarina simulans</a> Nabiac Casuarina [21935]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Asperula asthenes</a> Trailing Woodruff [14004]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Corunastylis littoralis</a> Tuncurry Midge Orchid [82945]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Cryptostylis hunteriana</a> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Cynanchum elegans</a> White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
<a href="#">Macadamia integrifolia</a> Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area
<a href="#">Phaius australis</a> Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
<a href="#">Syzygium paniculatum</a> Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Tetratheca juncea</a> Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or

Name	Status	Type of Presence
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	related behaviour known to occur within area Foraging, feeding or related behaviour known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<b>Sharks</b>		
<a href="#">Carcharias taurus (east coast population)</a> Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<b>Listed Migratory Species</b>		<b>[ Resource Information ]</b>
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Phoebastria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Breeding known to occur within area
<a href="#">Sterna albifrons</a> Little Tern [813]		Breeding likely to occur within area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<b>Migratory Marine Species</b>		
<a href="#">Balaenoptera borealis</a> Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area
<a href="#">Balaenoptera physalus</a> Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat may occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species

Name	Threatened	Type of Presence
<a href="#">Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		habitat may occur within area  Species or species habitat may occur within area
<a href="#">Manta birostris</a> Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Monarcha trivirgatus</a> Spectacled Monarch [610]		Species or species habitat known to occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat likely to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Roosting known to occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Roosting known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Roosting known to occur within area

Name	Threatened	Type of Presence
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Roosting may occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Roosting likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area
<a href="#">Heteroscelus brevipes</a> Grey-tailed Tattler [59311]		Roosting known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Roosting known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Roosting known to occur within area

## Other Matters Protected by the EPBC Act

### Commonwealth Land

[\[ Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

#### Name

Commonwealth Land - Australian Postal Commission  
Commonwealth Land - Australian Telecommunications Commission  
Commonwealth Land - Royal Australian Navy Central Canteens Board

### Listed Marine Species

[\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Roosting known to occur within area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Roosting known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Roosting known to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Catharacta skua</a> Great Skua [59472]		Species or species habitat may occur within area
<a href="#">Charadrius bicinctus</a> Double-banded Plover [895]		Roosting known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Roosting known to occur within area
<a href="#">Cuculus saturatus</a> Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea gibsoni</a> Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Roosting may occur

Name	Threatened	Type of Presence
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		within area Roosting likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Roosting likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Heteroscelus brevipes</a> Grey-tailed Tattler [59311]		Roosting known to occur within area
<a href="#">Himantopus himantopus</a> Black-winged Stilt [870]		Roosting known to occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Monarcha trivirgatus</a> Spectacled Monarch [610]		Species or species habitat known to occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat likely to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Roosting known to occur within area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within

Name	Threatened	Type of Presence area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Roosting known to occur within area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Roosting known to occur within area
<a href="#">Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Breeding known to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
<a href="#">Sterna albifrons</a> Little Tern [813]		Breeding likely to occur within area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche sp. nov.</a> Pacific Albatross [66511]	Vulnerable*	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Roosting known to occur within area
<b>Fish</b>		
<a href="#">Acentronura tentaculata</a> Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area
<a href="#">Festucalex cinctus</a> Girdled Pipefish [66214]		Species or species habitat may occur within area
<a href="#">Filicampus tigris</a> Tiger Pipefish [66217]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Heraldia nocturna</a> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
<a href="#">Hippichthys heptagonus</a> Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area
<a href="#">Hippichthys penicillus</a> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
<a href="#">Hippocampus whitei</a> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]		Species or species habitat may occur within area
<a href="#">Histiogamphelus briggsii</a> Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area
<a href="#">Lissocampus runa</a> Javelin Pipefish [66251]		Species or species habitat may occur within area
<a href="#">Maroubra perserrata</a> Sawtooth Pipefish [66252]		Species or species habitat may occur within area
<a href="#">Solegnathus dunckeri</a> Duncker's Pipehorse [66271]		Species or species habitat may occur within area
<a href="#">Solegnathus spinosissimus</a> Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area
<a href="#">Solenostomus cyanopterus</a> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
<a href="#">Solenostomus paegnius</a> Rough-snout Ghost Pipefish [68425]		Species or species habitat may occur within area
<a href="#">Solenostomus paradoxus</a> Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area
<a href="#">Stigmatopora nigra</a> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
<a href="#">Syngnathoides biaculeatus</a> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
<a href="#">Trachyrhamphus bicoarctatus</a> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
<a href="#">Urocampus carinirostris</a> Hairy Pipefish [66282]		Species or species habitat may occur within area
<a href="#">Vanacampus margaritifer</a> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Arctocephalus forsteri</a> Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Arctocephalus pusillus</a> Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pelamis platurus</a> Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

## Whales and other Cetaceans [ Resource Information ]

Name	Status	Type of Presence
<b>Mammals</b>		
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area
<a href="#">Balaenoptera borealis</a> Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area
<a href="#">Balaenoptera physalus</a> Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area

Name	Status	Type of Presence
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

## Extra Information

State and Territory Reserves	[ <a href="#">Resource Information</a> ]
Name	State
Bandicoot Island	NSW
Booti Booti	NSW
Darawank	NSW
Durands Island	NSW
Flat Island	NSW
Minimbah	NSW
Regatta Island	NSW
Wallingat	NSW
Wallis Island	NSW
Yahoo Island	NSW

## Regional Forest Agreements

[ [Resource Information](#) ]

Note that all areas with completed RFAs have been included.

Name	State
<a href="#">North East NSW RFA</a>	New South Wales

## Invasive Species

[ [Resource Information](#) ]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
<b>Birds</b>		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
<b>Frogs</b>		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
<b>Mammals</b>		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species

Name	Status	Type of Presence
<p>Vulpes vulpes Red Fox, Fox [18]</p>		<p>habitat likely to occur within area</p> <p>Species or species habitat likely to occur within area</p>
<b>Plants</b>		
<p>Alternanthera philoxeroides Alligator Weed [11620]</p>		<p>Species or species habitat may occur within area</p>
<p>Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Genista sp. X Genista monspessulana Broom [67538]</p>		<p>Species or species habitat may occur within area</p>
<p>Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Opuntia spp. Prickly Pears [82753]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]</p>		<p>Species or species habitat may occur within area</p>
<p>Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Rubus fruticosus aggregate Blackberry, European Blackberry [68406]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]</p>		<p>Species or species habitat likely to occur within area</p>

Name	Status	Type of Presence
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[ Resource Information ]
Name	State
<a href="#">Wallis Lake and adjacent estuarine islands</a>	NSW

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

# Coordinates

-32.18307 152.51399

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.